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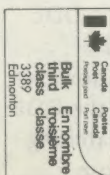
New Trail

the university of alberta
magazine

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What does a crab see in
an anemone? For that
matter, what does an
anemone see in a crab?
D. M. Ross, Dean of
Science, made a film of
their peculiar love story
and won first prize at
an international film
festival in Padua, Italy.

New Trail

The University of Alberta, Edmonton, Alberta

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Campus Reporter



university budgets cut

Major operating cuts have been made to all departments at the University, as a result of a serious financial setback this year.

The provincial government grant to the Alberta universities, although slightly higher than last year, fell several million dollars short of the sum required to maintain present levels of service.

Departments which were asked to prepare a "disaster budget" for 1972-73 in January in anticipation of a possible financial crisis were required to make even more reductions in the early spring.

Budget cuts throughout the University average 3.25 per cent for faculties and schools and 13.06 per cent for all other areas, including the library. "The Board is primarily concerned with maintaining the University's teaching function," said John E. Bradley, Chairman of the Board. "For every 1 per cent cut to the faculties and schools 4 per cent was cut from service departments."

To operate at the same level of service in 1972-73 as it has in the past year the University would require over 6 million dollars more than its expected revenues. This includes about \$1,100,000 in fixed increases, \$900,000 for maintenance for new buildings, the added new expenditure for unemployment insurance, and a large unfixed sum in the region of \$3,000,000 depending on salary negotiations. A final budget cannot be struck until salary negotiations are completed.

Cuts requested by the Board amount to only \$4,400,000. The remainder must be taken from the University's reserves.

President Max Wyman said that it would not be possible to comment about the effects of the cuts on the University's programs until the effects on each department were known.

Planning has been halted on new construction projects pending approval from the Capital Development Committee of the Provincial Cabinet. University facilities which are held up include the Household Economics Centre, Agriculture Building, and Business Administration and Commerce Building.

Dean of science wins film award

Dr. M. Ross, Dean of the Faculty of Science and Professor of Zoology, has been awarded the Bronze Baccanum for his entry in the Zoology section of the XXIII International Festival of Scientific and Educational Films held at Padua University in Italy.

The film, entitled *Passengers or Partners?* is about marriage.

Marriage? In a film intended for teaching zoology?

That is the reaction Dr. Ross usually gets when he tells people, in 25 words or less, what his 35-minute, 16mm color film is about. Further explanation reveals, however, that it deals with animals of "married species"—that is, animals of

different species that live together.

The stars in the film are various species of hermit crabs and spider crabs and three species of *Calliactis*, a sea anemone. Dr. Ross says the film shows that there is a definite, and probably beneficial relationship between the two associates, and that each member of the pair follows a specific pattern of behavior in relation to the other partner.

Hermit crabs live in empty snail shells into which they can withdraw for protection when threatened. In this state, large individuals are safe from most predators. Sea anemones are found usually on the shells of such large crabs, attached firmly by their pedal discs.

In some of these marriages the anemone does all the work, climbing on the shell without any help from the crab. In other cases, the crab approaches the anemone, rubs and tickles it until it lets go of the shell or stone to which it is attached, then lifts it onto the snail shell where it re-attaches itself.

Dr. Ross says his film and laboratory experiments prove that by imitating the crab's technique and using rods or brushes, these sea anemones can be "persuaded" to release themselves and can be relocated on shells just as the crab does.

In a series of experiments conducted at Naples in 1970, Dr. Ross found that the presence of sea anemones on the crab's shell protected the crab from an attacking octopus, which recoiled when it came into contact with the sea anemone.

Dr. Ross says he did most of his research on short leaves in Hawaii and Puerto Rico, and on sabbatical leave in Japan, New Caledonia, New Zealand, Italy, and England.

One copy of the film will remain in the film library at the University of Padua. Other copies, run from an inter-negative which Dr. Ross has had made, are being made available to universities and film libraries at cost.

physical education group visit china

This May a group from the Faculty of Physical Education are visiting the People's Republic of China. They are studying Chinese educational, sport, and physical education facilities and programs.

Robert G. Glassford, MA '64, Chairman of the Department of Physical Education, believes that this is one of the first western physical education groups given permission to tour China. He hopes that the visit will provide insight into Chinese programs of industrial recreation, national sports organizations, and school physical education.

Appointments

R. G. Baldwin, Professor of English and Associate Dean of the Faculty of Arts, has been named Dean of the faculty. He will succeed Douglas E. Smith who will retire June 30 after fourteen years as Dean. Dr. Baldwin, a native of Vancouver, first joined the University staff in 1951 and served as Chairman of the Department of English from 1967 to 1971.

Mary E. P. Henderson, who has been serving as Acting Director of the School of Library Science since last July, has been appointed Director of the school. She was Visiting Professor of Library Science here in 1970.

J. P. Das, Professor of Educational Psychology, has been appointed Director of the University's Centre for the Study of Mental Retardation. He succeeds E. E. McCoy, BSc '47, MD '49, who has been named Chairman of the Department of Paediatrics.

Wilfred H. O. Schmidt, Professor of Educational Psychology at this University since 1966, has been named Chairman of the Department of Educational Psychology. He previously served in a similar capacity and also as Dean of Education at the University of Natal, South Africa.

John S. Charnock, Professor of Pharmacology, has been appointed Chairman of the Department of Pharmacology. He succeeds E. E. Daniel, who had been chairman since the department was established eleven years ago.

sensing satellite to be launched

Foreign ownership, a touchy subject among many Canadians, will take on new meaning later this year when a satellite called ERTS-A is launched from the Space Research Center in Goddard, Maryland.

The ERTS (Earth Resource Technology Satellite) program is co-ordinated by the United States' National Aeronautics and Space Administration (NASA), but shares in the satellite are held by Canada, Mexico, Brazil, and some European countries.

Steve Pawluk, BSc '53, MSc '55, Associate Chairman of the Department of Forest Science and Professor of Soil Science at this University, was a member of the committee appointed by the Canadian government to study the merits of the program and make recommendations regarding Canada's involvement in it.

The satellite, to be launched in polar orbit late this summer, will collect data for terrain analysis by means of remote sensing. It will pass over Canada twice every 24 hours, once during the day and once during the night. Each pass will cover a swath of terrain 100 miles wide, and it will pass over the same area approximately every 18 days. Data recorded during the day will be "played back" when the satellite passes over again that night.

ERTS-A will be equipped with two Viticon return-beam (television) cameras and a multi-scanner that records photography in three bands within the visible light spectrum.

According to Dr. Pawluk, there are a number of uses for the photographs. If the census bureau wanted to determine the number of acres being used for growing rapeseed, for example, the satellite could do in a few days what it would take the bureau's staff weeks to do.

ERTS-A also will be able to determine the amount of snowfall in a given area, or monitor

the amount of damage caused by a forest fire. It will give a bird's eye view of a growing city to urbanologists studying past development and making future plans.

Its sensors can detect insect damage to crops long before the damage is visible to the farmer. It also can be used as a method of policing in the pollution control program.

The present arrangement is that the federal government will make the collected data available to government and private agencies, students, and researchers for a nominal fee.

today's fashions in history

The micro-mini has gone the way of the Edsel and the "in" look in clothing is "out." Men and women are wearing what they want to wear, and no one is taking much notice of the fads that no longer are.

No one, that is, except Anne Lambert, an Instructor in the clothing and textiles division of the University's School of Household Economics. Miss Lambert is curator of the school's historical costume and textile collection. Her job involves not only bickering with dealers for clothes that great-great-grandmother wore, but also cataloguing and collecting fashions from the more recent past and present.

"The costumes have been collected bit by bit, since Household Economics began," says Miss Lambert. "The earliest one we have dates back to the 1840s. I am trying to fill in the gaps by buying costumes from a dealer in New York. From the 1890s on, I get a lot of them locally, but anything earlier than that is difficult to obtain, of course, because Edmonton hasn't existed very long."

The 1840s dress in the collection is from the early crinoline period. Since fabric was very narrow at that time, the dress is pieced together in every place imaginable. All of the stitching was done by hand.

Considering the amount of work that went into each dress, one would think the advent of the sewing machine would have meant that women made more clothes for themselves than previously, but this was not the case. The new labor saving device simply meant they could make their clothes more elaborate and fussy, says Miss Lambert.

"Dresses from the 1870s, for example, had so much detail they had to be taken apart at the seams, washed and ironed in pieces, and sewed back together again. It was impossible to iron such dresses any other way."

She says their sample from the late 1890s is the closest thing to a Klondike dress, and it is not at all like most dresses sold in the shops for Klondike Days.

"The dresses from that period had big leg-of-mutton sleeves and pouchy fronts, because the women considered it indelicate to admit they had breasts."

She says the school would like to obtain more costumes from almost any period.

"We would also like examples of handwork and costumes from ethnic groups in Edmonton. In Europe, most of the folk costumes have already disappeared, as have the ethnic groups themselves. In future years, our students may have to search really hard for their ethnic identities. We would like to have costumes and textiles available for them to study."

In addition to costumes and textiles, the school would like to have accessories such as shoes, handbags, and jewelry; women's magazines from the turn of the century; old photographs depicting fashions of the times; books on needlework; and old sewing machines.



A collection of portraits of The University of Alberta's alumni, staff, and students

Mozaffar soudi

For Mozaffar Soudi, a student in sciences at the University, music is probably the most important thing in life. Everything he does, everything around him is music: he sees rhythms in the ways leaves move, he hears himself playing music when he walks, skates, even while he is studying.

Mozaffar comes from Sanada in northwest Iran, and he is a master in the art of playing the traditional music of Persia, the music of the ancient Kurds.

Persian music reached its first golden age in the late sixth century. It was absorbed by the invading Arabs and became the main formative element in Islamic music. Strange, but not so strange to western ears as the music of India, Mozaffar's music has a brilliant, delicate, haunting quality that transcends borders and cultures.

When he was six Mozaffar learned to play the santour, an instrument like a dulcimer. It consists of 72 metal strings stretched across a trapezoidal box and struck with small wooden mallets. Later he learned the violin, with which he won a national competition twice, when he was 16 and 17. He also plays the tar, a long, six-stringed lute-like instrument, and the dombak, which he considers his specialty, a goblet shaped drum capable of an amazing range of sounds.

Mozaffar is recognized as an outstanding musician in his native Iran. He has toured Europe and performed in New York, Washington, D.C.,

and the western United States.

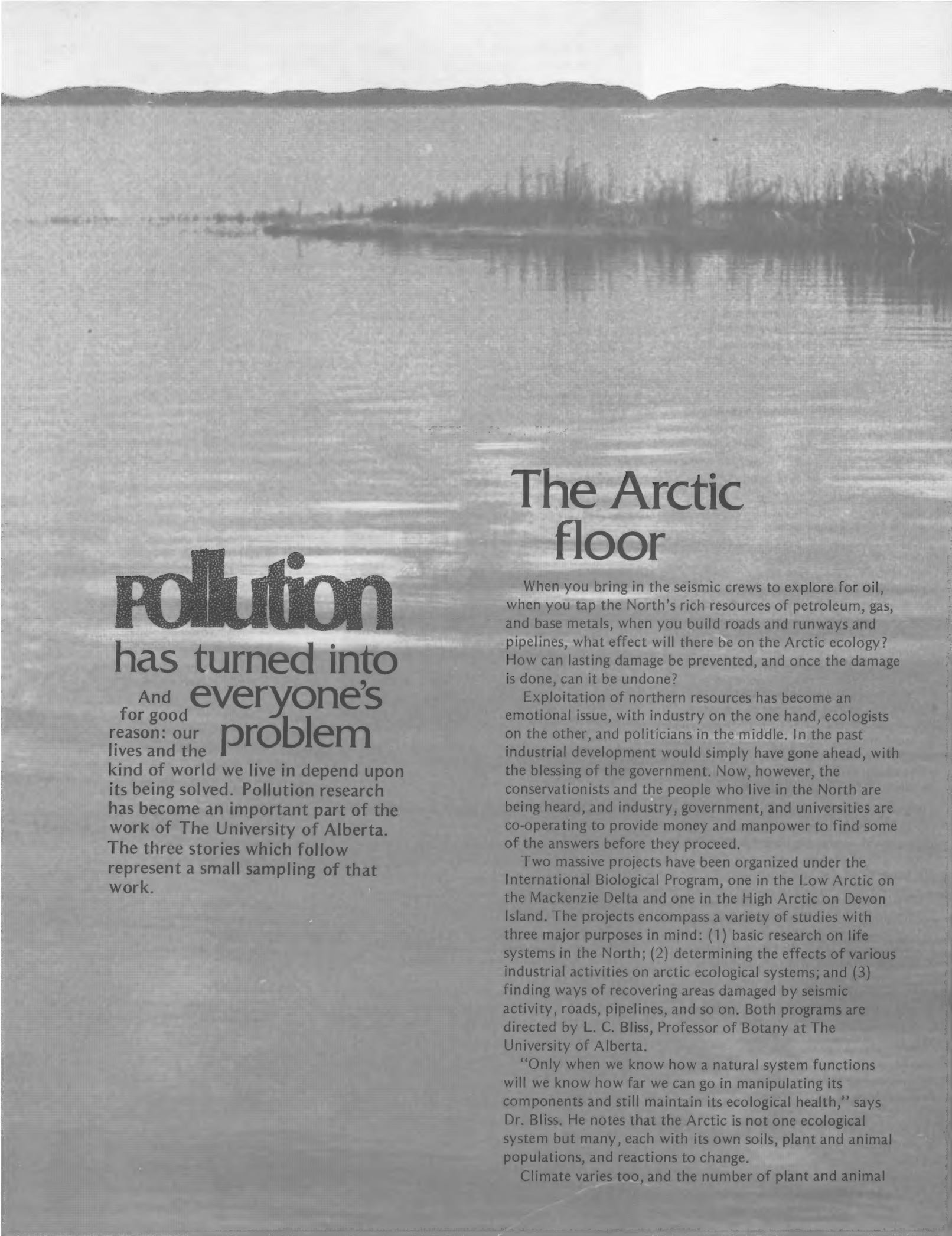
Of one performance, at the International Festival at the University of Oregon before 6,000 people, a review said, "Soudi topped the show with his soul-moving singing and his talents on the santour and the dombak." He has been asked to record an album for Paramount Studios.

Last year, after a long break from performing, Mozaffar decided to give a concert at The University of Alberta. He had come here to study engineering, partly as a concession to his father in Iran who was somewhat skeptical of a career in music. During his first year here he practised very little, but as he became lonely he began to play for himself. Soon he wanted to perform for other people again. None of his Edmonton friends had known he was a musician.

Following Persian tradition, the concert was free of charge: in Iran classical music is considered to belong to the people. It was all candlelight on rich Persian rugs, Omar Khayyam, and the small figure of Mozaffar creating incredible, exotic music from the dombak and santour. The full house was captivated with the music and the virtuoso performance of the musician.

Since then Mozaffar has not given other concerts, although he has experimented with videotape productions combining his music with improvised ballet. He has, however, made a few plans. "And about 95 per cent of them involve music," he said.





Pollution

has turned into And everyone's for good reason: our lives and the kind of world we live in depend upon its being solved. Pollution research has become an important part of the work of The University of Alberta. The three stories which follow represent a small sampling of that work.

The Arctic floor

When you bring in the seismic crews to explore for oil, when you tap the North's rich resources of petroleum, gas, and base metals, when you build roads and runways and pipelines, what effect will there be on the Arctic ecology? How can lasting damage be prevented, and once the damage is done, can it be undone?

Exploitation of northern resources has become an emotional issue, with industry on the one hand, ecologists on the other, and politicians in the middle. In the past industrial development would simply have gone ahead, with the blessing of the government. Now, however, the conservationists and the people who live in the North are being heard, and industry, government, and universities are co-operating to provide money and manpower to find some of the answers before they proceed.

Two massive projects have been organized under the International Biological Program, one in the Low Arctic on the Mackenzie Delta and one in the High Arctic on Devon Island. The projects encompass a variety of studies with three major purposes in mind: (1) basic research on life systems in the North; (2) determining the effects of various industrial activities on arctic ecological systems; and (3) finding ways of recovering areas damaged by seismic activity, roads, pipelines, and so on. Both programs are directed by L. C. Bliss, Professor of Botany at The University of Alberta.

"Only when we know how a natural system functions will we know how far we can go in manipulating its components and still maintain its ecological health," says Dr. Bliss. He notes that the Arctic is not one ecological system but many, each with its own soils, plant and animal populations, and reactions to change.

Climate varies too, and the number of plant and animal



species declines sharply with the increasing harshness of their environment. Those that remain are stretched near their limit to find enough energy to grow and reproduce.

There are a variety of ways the delicate balance of the Arctic can be disturbed by resource development.

The most visible and among the most serious damage is thermal erosion. Frozen water comprises a large proportion of the soil in the permafrost, sometimes as much as 90 percent. When the ice melts, it evaporates and the soil collapses. Heavy machinery used in resource development may compress or destroy the insulating layer of moss, lichens, and peat that protect the permafrost from thawing.

Human carelessness increases the fire risk in any developed area, and both forests and tundra are susceptible to fire. Not only do the erect crowns of plants burn, but mosses, lichens, and even the wet, protective peat layer catch fire. Some vegetation grows back within a year or two, but moss and lichens will not recover for many decades.

Crude oil spills, frequent companions of petroleum explorations and pipelines, are particularly difficult to deal with in the North, and considerable research is being devoted to them. Some oils which stop pouring at relatively high temperatures will jell on the frozen ground and may be scraped up. Otherwise oil runs quickly along the surface of the permafrost in normal drainage routes into lakes and streams. Heavy equipment and burning, used effectively in treating oil spills in temperate zones, would cause more damage in the Arctic than the spills themselves.

Scarred and collapsed ground, black patches from oil spills and fires, make a barren landscape more barren. But their unsightliness is less important than their impact on the ecological system of an area. Plants which provide food and shelter are killed or washed away. Where damage covers a large space, whole populations of small mammals migrate. Larger mammals such as caribou hesitate to cross roads and scars in the arctic floor to reach feeding grounds.

Treatment with fertilizer and reseeded were found in some of the studies to help recover disturbed land such as pipeline routes in the Low Arctic. Very few temperate zone

plants will grow in the North, but six species were found that winter well and provide good ground cover. Since sites within damaged areas show different reactions to different crops and different fertilizer, mixtures of seeds were found best to use, rather than just one variety.

Because of the extremely slow growth rate and the lack of enough seed for species that could survive the harsh climate, the researchers felt that reseeded was not the answer, at least not now, for recovering damaged land in the High Arctic.

As research in these and other northern projects continues, the various life systems of the Arctic will be understood better, and means of protecting them and recovering damage to them will follow.

Spilling oil for science

Oil spills.

They rank with high unemployment and freeways, and anyone in favor of them might as well say a few words about annexation of our country by the United States before he goes under for the third time.

But while sign-toting ecologists are damning the oil companies for their land spills, research scientists are busy pouring gallons of crude oil onto quarter sections in Canada. They are killing some grass, making a few mistakes, and gathering enough information to make the fear of oil spills on land a thing of the past.

F.D. Cook, Professor of Microbiology in the Faculty of Science and Professor of Soil Science in the University's Faculty of Agriculture, says both departments have been studying the effect of controlled spills on land for almost five years now. The two main objectives of this seemingly destructive exercise are: (1) to find out the length of time the application of oil remains toxic to plant life, and (2) to

determine what conditions and micro-organisms are involved in the detoxification.

Dr. Cook and other researchers involved in the same type of work have found that certain microbes which occur naturally in the soils will attack crude oil and cause its chemical content to change. If nitrogen-rich fertilizer, on which the microbes thrive, is added to the soil after the primary cleaning-up stage of pumping off as much surface oil as possible, detoxification occurs even more rapidly than if nothing had been added.

Controlled land oil spills are measured in terms of the weight-percentage of oil compared to the weight-percentage of land. The soil in an acre of land is estimated to weigh two million pounds. A 10 percent spill on one acre, then, would be 200,000 pounds of oil. This is considered to be a very large spill. Controlled spills usually don't exceed five percent, since the soil will not hold more than that.

Dr. Cook has found that although detoxification occurs very rapidly when the application of oil is three percent or less, the oily characteristic is not completely destroyed and the soil is difficult to moisten. Often, if nitrogen has been added to the soil, the toxic effect of the oil on the plants is dissipated within three to six months.

If the spill is between three and five percent, the rate slows down to about 10 to 12 months.

The rate is much more rapid on the black, high-fertility soil around Edmonton than on the gray wooded soils in some other areas.

Says Dr. Cook of his conclusions, "If one wants to increase the rate of decomposition of a spill, one should resort to application of a commercial fertilizer. Oil is a carbon-rich material, so to decompose it, one must supply the micro-organisms with nitrogen, because the rate of decomposition of oil is dependent upon the availability of nitrogen.

"The micro-organisms are already in the soil; they do not have to be introduced. But one should encourage the growth of the organisms by providing optimal conditions. On a spill of three to five percent, it takes at least 100 pounds of nitrogen per acre of fertile land. The smaller spills require about 50 pounds per acre. Larger amounts must be used on low-fertility soil, however, or there will be little or no decomposition of the oil."

Dr. Cook adds that controlled spills on water also have been carried out in Canada, "but we're really just beginning to understand how to deal with them. A lot of research remains to be done on the effect and control of both types of spills."

The terns of Chip Lake

About four years ago the Canadian Wildlife Service analyzed chlorinated hydrocarbon residues, such as DDT and its derivatives, in the eggs of several species of aquatic birds in Western Canada.

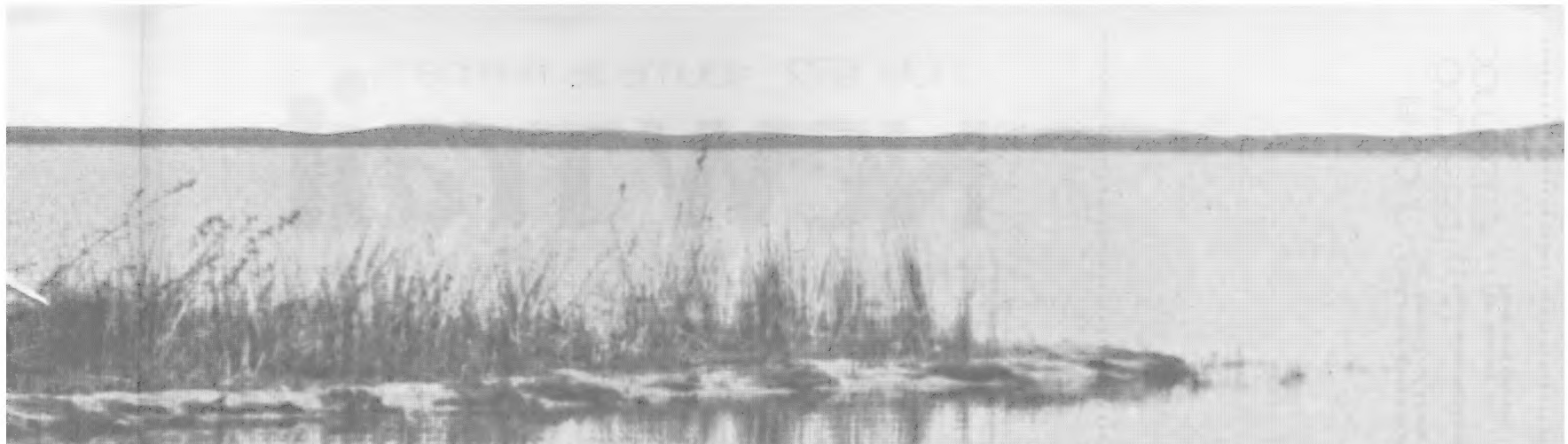
Eggs from a colony of common terns nesting on an island in Chip Lake, 80 miles west of Edmonton, showed the highest residue levels. To Vic Lewin, Professor of Zoology at The University of Alberta, these birds seemed ideal subjects for a study of the effects of these residues on reproduction.

The two chlorinated hydrocarbons found in the common terns of Chip Lake were DDE, a metabolic product of the pesticide DDT, and polychlorinated biphenyls, PCBs, very stable compounds closely related chemically to DDT which are added extensively to rubber, plastics, paints, and hydraulic fluid. No DDT residue could be found, as it would have been if the birds had ingested it recently. Only minute traces of DDT were found in fish in Chip Lake. Therefore it was concluded that the terns had picked up their DDE and PCB residues from their wintering grounds along the coast of southern California and Mexico (DDT is manufactured and PCBs used industrially around Los Angeles on estuaries where the terns eat contaminated fish).

The devastating effects of DDT have been well-documented in recent years: its progressive concentration through food chains; the death of robins and many species of songbirds as described in Rachel Carson's classic, *Silent*



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Spring; the unsuccessful breeding and population decline of peregrine falcons in Great Britain, brown pelicans in California, and a variety of birds of prey.

Precisely how the DDT and its derivatives affect reproduction in birds is not known, but certain correlations have been found. One such correlation has been shell thinning—the production of eggs with shells too weak to support the weight of the nesting parent. This phenomenon, believed to have been caused not so much by DDT as by its derivative DDE, has been observed in several species, including the common tern on the eastern seaboard.

Not so for the colony at Chip Lake or colonies at other Alberta centres, Buffalo Lake and Lake Newell, according to Dr. Lewin and his research team. After studying 360 eggs laid in 160 nests by 125 pairs of common terns, he found no correlation between shell thinning and DDE levels.

However, the hatching success for the eggs was very low, 24 percent, and fledgeling success was only 5 percent. Considering the mortality of adult terns at 25 percent and yearling mortality at 50 percent, the reproductive success of the colony was not adequate to maintain it.

What happened to the unsuccessful eggs? Almost 60 percent disappeared without a trace, possibly eaten by adult terns (California gulls from a neighboring colony, not above eating tern eggs, were invariably driven off or killed by the smaller but more pugnacious terns). Another 18 percent of the eggs were abandoned.

Sixteen percent had depressions in their shells which apparently bore no relation to shell thickness. The depressions seemed to be caused by the birds' movement of the eggs against rocks. DDE residue in eggs with depressed shells was high. Further study using the University's Scanning Electron Microscope, some of it just begun, seems to indicate a weakening of the shell's structure that coincides with high DDE levels, especially a tendency for

affected shells to become much more porous than normal shells.

What of the high mortality of the chicks? Dr. Lewin believes this may result to some extent from changes in parental behavior linked with DDE residue in the birds, including an increased tendency to abandon nests.

Perhaps a positive trend bears out Dr. Lewin's findings about the reproductive effects of DDE in the common tern. In 1968, when the eggs of the Chip Lake colony were first tested, they averaged 25 parts per million of DDE residue. The next year, probably because of decreased use of DDT in the United States where the terns winter, levels of DDE in the eggs dropped to 7.5 parts per million. Only 24 percent of the eggs from the colony were hatched, however, and fledgeling success was only 5 percent. In 1970 the DDE level dropped again to only 4.5 parts per million, hatching success rose to 42 percent, and fledgeling success rose five-fold to 25 percent.

This summer the research team will continue its studies of chlorinated hydrocarbon levels in the common tern and of the corresponding strength of tern eggs.

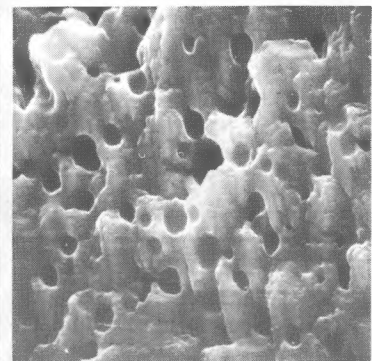
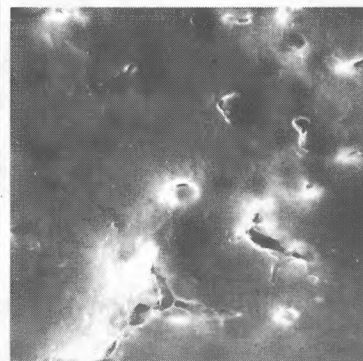
They will also study more closely the physiological and behavioral effects on the birds of DDE and also the PCBs. PCBs, linked with grotesque and increasing birth deformities among common terns of the American east coast, recently have shown equally as toxic to mammals as DDT.

Common terns and humans share one important characteristic: both are at the end of the food chain. The human food chain, however, is much more complicated than that of terns.

Between 5 and 15 parts per million of DDT has been discovered in humans, and recent studies show that PCBs have already worked their way up food chains and into human tissue. The effects of the residues are just beginning to be understood in birds—what will they be in humans?



DDE residues in the eggs of common terns in Alberta correspond with a weakening of the shell's structure. Depressions such as the one shown at the left are caused by the accidental movement of eggs with weakened shells against stones in the nest. The Scanning Electron Microscope shows that the surface of an affected eggshell (far right) is much more porous than a normal shell (right). Both are magnified 8,000 times.



Deaths

Samuel R. Laycock, MA '16, BD '20, BEd '23, Dean Emeritus of Education at the University of Saskatchewan.

Most of Dr. Laycock's long teaching career was spent at the University of Saskatchewan, as Professor and then Dean of Education. After his retirement in 1953 he continued and broadened his professional work in fields of special education, child and adolescent psychology, mental health, parent-teacher relationships, exceptional children, and penal reform. His work was known and respected throughout the English speaking world.

Last spring Dr. Laycock was awarded the Medal of Service of the Order of Canada.

Edward A. McCourt, BA '32, well-known Canadian novelist and Professor of English at the University of Saskatchewan since 1944. Dr. McCourt won a Rhodes Scholarship while he was a student at The University of Alberta, and subsequently studied five years at Oxford. His books include a literary study, *The Canadian West in fiction* (1949); *Music at the close* (1947), *Home is the stranger* (1950), *Walk through the valley* (1958), *The wooden sword* (1956), *Fasting friar* (1963) all novels; *The road across Canada* (1965), a travelogue of a motoring trip across the Trans-Canada Highway; and three stories for children about the Northwest Rebellion.

William Douglas Knill, BEd '50, Professor of Educational Administration. Dr. Knill was working this year as an advisor on educational planning and statistics in Northern Nigeria, under the auspices of the Nigerian government and the Canadian International Development Agency. A native of east central Alberta, he joined the Faculty of Education staff in 1962.

Mary Alice Scott, Periodicals Reading Room Librarian. Miss Scott, originally from Saskatchewan, joined the library staff in 1969, following three years as a teacher of English at a girls' school in Kofu, Japan.

Christopher J. Smith, Associate Professor of Biochemistry. Dr. Smith joined the Department of Biochemistry in 1966. He was born in Kent, England, and studied at the Chester Beatty Institute in London and the Massachusetts Institute of Technology.

John George Niddrie, MA '20, well-known Edmontonian and teacher.

H. R. (Harry) Christie, BA '20, a physician who played a key role in the organization and development of "Well Women's Clinics" in British Columbia.

Donald Murray McRae, LLB '24, in Ottawa of a heart attack in January.

Ernest A. Mack, BA '52, practising physician at Anaheim, California.

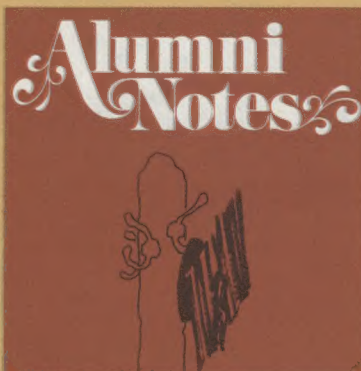
'32 O. R. Wray, BSc (Eng) '32, left Canada in February for India. He will serve as advisor under the Colombo Plan for the Khatri Copper Project of Hindustan Copper Limited.

'36 A member of the Household Economics teaching staff from 1936 to 1940, Mrs. A. Michalenko, BSc (HEC) '36, has been appointed to the Standards Council of Canada, Department of Industry, Trade and Commerce. The Purpose of the Council is to facilitate domestic and international trade and to further co-operation in the field of standards.

Ian D. Richie, BSc (Eng) '36, has been appointed Vice-President, Operations, for Du Pont of Canada Limited.

'37 Don McFadden, BSc (Ag) '37, head of the plant breeding section at the Lacombe Research Station has left for a two-year tour of duty in Tanzania. Mr. McFadden will be the leader of a Canadian team working to improve wheat production there under the auspices of the Canadian International Development Agency.

'38 R. S. Purkis, BSc '38, has been appointed Medical Vice-President, of the Canada Life Assurance Company.



'42 Reginald Smith, MD '42, consultant in obstetrics and gynecology at Mayo Clinic, has been elected President of the Minnesota Obstetrical and Gynecological Society for 1972.

'47 After serving a year as Acting Dean of Graduate Studies at the University of Toronto, W. Douglas Baines, BSc (Eng) '47, has been appointed Chairman of the Department of Mechanical Engineering.

'48 Philip H. Dau, BSc (Eng) '48, has been appointed President of Williams Brothers Canada Limited, a company which specializes in the design and construction management of gas, oil, product, and commodity pipeline systems.

Donald D. Lougheed, BSc (Eng) '48, has been appointed a Vice-President of Imperial Oil Limited and General Manager of the company's producing department.

Gerald D. Fasman, BSc '48, has been appointed to the Rosenfield Chair in Biochemistry at Brandeis University, Waltham, Massachusetts.

'49 A new consulting firm, Shortliffe and Associates, has been established in Toronto in the general field of health care. Members of

the firm include Ernest C. Shortliffe, BA '41, MD '49, a past director of staff health at The University of Alberta Hospital and more recently, Assistant Vice-President for Medical Affairs of the Greater New York Health Insurance Plan.

Geologist Hugh Hay-Roe, BSc '49, has been appointed Assistant Vice-President of Belco Petroleum Corporation in New York. Dr. Hay-Roe was recently transferred from Lima, Peru.

George Kostashuk, BSc '49, has joined Sigma Explorations Limited as Assistant to the Manager. Since 1950 he has been involved in petroleum exploration in Eastern Canada, Northwest Territories, the Arctic Islands, and overseas.

'50 The new Financial Aids Officer at the University of Alaska is Evelyn Fitzsimmons, BSc '50. Miss Fitzsimmons came to Alaska to work for an Anchorage brokerage firm, following previous positions in Hawaii, Oregon, and Canada.

'51 Stanley J. Chad, BSc (Eng) '51, has been appointed Vice-President of Voyager Petroleum.

'53 Stephen A. Antoniuk, BSc '53, MSc '54, chief geologist for Amoco International Oil Company has been named Managing Director for Iran Pan American Oil Company in Teheran.

J. Judd Buchanan, BA '53, Member of Parliament for London West, has been appointed Parliamentary Secretary to the Minister of Finance, the Honourable John Turner.

'57 H. J. Sandham, DDS '57, has been appointed Associate Professor of Preventive Dentistry at the University of Toronto.

'61 An employee of Benson and Hedges Tobacco Company since 1967, John E. Broen, BSc (Eng) '61, has been appointed Vice-President-Director of Marketing.

'62 British Columbia Progressive Conservative Party President Peter Hyndman, B.Com '62, was nominated to contest the West Vancouver-Howe Sound constituency in the next provincial election.

'63 John P. Ryder, BSc '63, MSc '65, is doing population biology studies on blue geese at Churchill, Manitoba. Dr. Ryder is an Assistant Professor of Biology at Lakehead University.

'66 Dennis McMinn, BSc '66, of the Carleton Chemistry Department, Northfield, Minnesota, has been promoted to Assistant Professor.

'68 The College of Medicine and Dentistry, of New Jersey has announced the appointment of John E. Eisner, DDS '68, of Union City as Assistant to the Dean for Planning.

'71 Robert B. Newell, PhD '71, is a process control engineer with Shell International Petroleum in The Hague.